In the Claims:

Please amend claims 3, 4, 6 – 12, 16, 17, 19 – 21, inclusive, as follows:

1 (Original). A method of generating a routing table of destinations for a first physical node of a data communication network which network consists of a plurality of nodes, links interconnecting said nodes and a plurality of destinations associated with respective nodes, comprising the steps of:

a) collecting topological information on at least a part of the data communication network in terms of physical nodes and links between physical nodes;

b) embedding the collected topological information in a plane corresponding to a first network level;

c) identifying one or more closed loops of interconnected nodes lying in the plane of said network level;

d) for a first further network level, assigning a virtual node for each closed loop of interconnected nodes in the previous network level, each virtual node being representative at the further network level of the nodes of the corresponding closed loop in the previous network level and any destinations associated with those nodes;

e) identifying links between said virtual nodes, the links corresponding to nodes in the previous network level that are common to two or more virtual nodes in the further network level;

whereby the route between said first physical node and a destination associated with a further physical node of the data communication network is defined in relation to a network level at which said first physical node and the further physical node are interconnected by a single path; and

f) populating the routing table of the first physical node for each destination with the set of paths that belong to the previous network level corresponding to the single path at the network level at which the first physical node and said destination are interconnected.

2 (Original). A method of generating a routing table as claimed in claim 1, wherein said closed loops comprise a collection of nodes in which each node is connected to itself via at least one other node using the smallest number of nodes, excluding nodes that are only connected to other nodes within the closed loop.

3 (Currently Amended). A method of generating a routing table as claimed in claim 1, ~~claims 1 or 2,~~ wherein the collected topological information is used to generate a subnetwork and wherein the subnetwork is embedded in said plane corresponding to said first network level to produce a planar embedded graph from which faces are identified corresponding to said closed loops.

4 (Currently Amended). A method of generating a routing table as claimed in claim 1, ~~any one of the preceding claims,~~ wherein at least steps c) to e) are repeated cyclically for further virtual network levels.

5 (Original). A method of generating a routing table as claimed in claim 4, wherein step b) is also repeated cyclically with steps c) to e) for further virtual levels.

6 (Currently Amended). A method of generating a routing table as claimed in claim 4, ~~claims 4 or 5,~~ wherein step f) of populating the routing table is repeated for each further network level.

7 (Currently Amended). A method of generating a routing table as claimed in claim 4, ~~in any one of claims 4 to 6,~~ wherein at least steps c) to e) are repeated cyclically until said part of the data communication network has been simplified at a virtual network level to a wholly deterministic structure.

8 (Currently Amended). A method of generating a routing table as claimed in claim 4, ~~any one of claims 4, 5, or 6,~~ wherein a selected sector of the data communication network is assigned superiority with respect to a further sector of the data communication network and repetition of at least steps c) to e) is halted when a deterministic link is

identified between the selected sector and the further sector of the data communication network.

9 (Currently Amended). A method of generating a routing table as claimed in claim 1, ~~any one of the preceding claims,~~ wherein topological information on all nodes and links of the data communication network is collected.

10 (Currently Amended). A method of generating a routing table as claimed in claim 1, ~~any one of the preceding claims,~~ wherein host information and their destination addresses are also collected.

11 (Currently Amended). A method as claimed in claim 1, ~~any one of the preceding claims,~~ wherein a link between two virtual nodes in a further network level is only identified where there is a minimum of two nodes common to their corresponding closed loops in the preceding network level.

12 (Currently Amended). A method of generating a routing table as claimed in claim 1, ~~any one of the preceding claims,~~ wherein one or more non-planar links at the first network level are omitted.

13 (Original). A method of generating a routing table as claimed in claim 12, wherein a non-planar link omitted from the first network level is embedded at a further network level at which the link can be added whilst preserving the planarity of the further network level.

14 (Original). A network node suitable for use in a data communication network which network consists of a plurality of nodes, links interconnecting said nodes and a plurality of destinations associated with respective nodes, the network node comprising:

an input/output interface for data input to and output from the network node;

data storage adapted to store a routing table;

a processor for populating said routing table;

a selector for selecting a path across said data communication network to a destination on the basis of information contained in said routing table; and

program storage means in which is stored a set of instructions for populating said routing table, the set of instructions comprising instructions for:

a) collecting topological information on at least a part of the data communication network in terms of physical nodes and links between physical nodes;

b) embedding the collected topological information in a plane corresponding to a first network level;

c) identifying one or more closed loops of interconnected nodes lying in the plane of said network level;

d) for a first further network level, assigning a virtual node for each closed loop of interconnected nodes in the previous network level, each virtual node being representative at the further network level of the nodes of the corresponding closed loop in the previous network level and any destinations associated with those nodes;

e) identifying links between said virtual nodes, the links corresponding to nodes in the previous network level that are common to two or more virtual nodes in the further network level;

whereby the route between said first physical node and a destination associated with a further physical node of the data communication network is defined in relation to a network level at which said first physical node and the further physical node are interconnected by a single path; and

f) populating the routing table of the first physical node for each destination with the set of paths that belong to the previous network level corresponding

to the single path at the network level at which the first physical node and said destination are interconnected.

15 (Original). A network node as claimed in claim 14, wherein the selector comprises a switching fabric.

16 (Currently Amended). A network node as claimed in claim 14, ~~either of claims 14 and 15,~~ wherein said program storage means further includes instructions for updating the routing table on the basis of information communicated across the data communication network.

17 (Currently Amended). A method of operating a network node in a data communication network, the network node being in accordance with claim 14, ~~any one of claims 14 to 16,~~ the method comprising the steps of: when data to be transmitted to a destination on the data communication network is input to the network node, the selector accesses the routing table to identify the route for the required node associated with the destination of the data; where the required node is linked at a network level to the network node by a single path, the selector determines a direction of circulation of the data around the underlying closed loops at each previous level in which the network node participates in order to achieve deterministic routing of the data across the network.

18 (Original). A method of operating a network node as claimed in claim 17, wherein a path for the destination of input data is adaptively selected with respect to a closed loop at a particular network level, based on available information on the network state at that level.

19 (Currently Amended). A method of operating a network node as claimed in claim 17, ~~claim 18,~~ wherein the routing table of the network node is updated at predetermined intervals to reflect the network state at each network level.

20 (Currently Amended). A method of operating a network node as claimed in claim 17, ~~any one of claims 17 to 19,~~ wherein address and network performance information are distributed at each network level with the nodes themselves as the destinations.

21 (Currently Amended). A data communication network comprising a plurality of network nodes in accordance with claim 14, ~~any one of claims 14 to 16,~~ and interconnecting links between nodes.

22 (Original). A data communication network as claimed in claim 21, wherein the interconnecting links may be selected from wire links, fibre optic links, infrared links and wireless links or a combination thereof.